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Psychotropic Drug Use in Very Young Children

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The study by Zito and colleagues 1 in this issue of THE JOURNAL on the use of psychotropic medications in very young children in 2 Medicaid programs and a managed care organization suggests that 1% to 1.5% of all children 2 to 4 years old enrolled in these programs currently are receiving stimulants, antidepressants, or antipsychotic medications. The authors also report that the prevalence of neuropsychopharmacologic interventions in this age group increased substantially during the last decade.

This reported increased use of psychotropic drugs in very young children raises important questions. Are the findings aberrant? Are they consistent with evidence-based medicine? Is there a reason to be concerned about this new prescribing pattern?

Several recent studies provide additional evidence that the prescription of psychotropic drugs to very young children has increased during the last decade. In a review of information from the Intercontinental Medical Statistics Study, Minde 2 described a 3-fold increase in methylphenidate prescriptions in Canada and a 10-fold increase in the prescription of selective serotonin reuptake inhibitors in the United States for children 5 years old and younger between 1993 and 1997.

This article also summarized findings from Strasbourg, France, showing that 12% of children beginning school were receiving psychotropic medications, primarily phenothiazines, and that 76% of these commenced treatment by their fourth year of life.

In an analysis of Michigan Medicaid claims, Rappley et al 3 identified 223 children aged 3 years or younger who received the diagnosis of attention-deficit/hyperactivity disorder, the majority of whom had significant comorbid conditions. While only a quarter of these children received psychological services, nearly 60% received psychotropic medications, and almost half of these were prescribed 2 or more psychotropic medications. Thus, the findings of Zito et al 1 and Rappley et al 3 appear to identify an important change in psychotropic drug prescribing practices for very young children. As 3 of the 4 data sets are derived from Medicaid populations, the findings suggest that poor children are experiencing these changes in drug prescribing practices, but additional investigation in other populations is required.

It should be emphasized that most of the drugs prescribed involve off-label use because efficacy of psychotropic drugs has not been demonstrated in very young children. As noted by Greenhill, 4 methylphenidate, the most commonly prescribed drug in these studies, carries a warning against its use in children younger than 6 years. Furthermore, the validity and reliability of the diagnoses of attention-deficit/hyperactivity disorder, mood disorders, and schizophrenia in very young children have not been demonstrated.

To ascertain whether the prescribing practices documented by these recent reports represent informed practice, I surveyed the editorial board (48 physicians) of the *Journal of Child and Adolescent Psychopharmacology* by facsimile about their prescribing of stimulants, clonidine, antidepressants, and antipsychotics for 2- to 4-year-old children (unpublished data, November 24, 1999). The board consists of expert clinicians and clinical researchers who are likely to treat the most difficult cases. Seventy-two percent of the physician board members responded. Most (28 of 35) reported either no use or very rare prescribing of these medications in this age group, and only 3 reported prescribing clonidine on rare occasions. The few positive responses generally were associated with the description of use of these drugs for severe, intractable cases such as the management of children with severe self-injurious behavior. The rarity of the use of psychotropic medications in very young children reported by experts in pediatric psychopharmacology suggests that they are much more reticent than the physicians treating the children in these studies.

Since there is virtually no clinical research on the consequences of pharmacologic treatment of behavioral disturbances of very young children, is there a basis for concern about these prescribing practices? Early childhood is a time of tremendous change for the human brain. Visual processing, language, and motor skills are acquired during this sensitive period. 5 The cortical synaptic density reaches its maximum at the age of 3 years and is substantially modified by pruning during the next 7 years. 6 At the same time, the cerebral metabolic rate peaks between 3 and 4 years of age. 7

Studies in experimental animals indicate that the aminergic systems that are the target of action of these psychotropic medications play an important role in neurogenesis, neuron migration, axonal outgrowth, and synaptogenesis. 8 In this regard, it has been shown that depletion of serotonin in the preweanling rat results in a persistent decrease in cortical synaptic density and in memory deficits in adulthood. 9 Perinatal treatment of rats with an antipsychotic drug results in a long-standing abnormality in dopamine receptor function and altered levels of dopamine and norepinephrine in adulthood. 10 Thus, it would seem prudent to carry out much more extensive studies to determine the long-term consequences of the use of psychotropic drugs at this early stage of childhood.

Given that there is no empirical evidence to support psychotropic drug treatment in very young children and that there are valid concerns that such treatment could have deleterious effects on the developing brain, the reasons for these troubling changes in practice need to be identified. Unfortunately, the study by Zito et al 1 does not provide the diagnoses of the children or the professional identities or specialties of the prescribers, which could shed some light on the reason for these prescribing patterns. One possible contributing factor is the way mental health services are provided to children. For example, many state Medicaid programs now provide quite limited reimbursement for the evaluation of behavioral disorders in children and preclude more than 1 type of clinical evaluator per day. Thus, the multidisciplinary clinics of the past that brought together pediatric, psychiatric, behavioral, and family dynamic expertise for difficult cases have largely

ceased to exist. As a consequence, it appears that behaviorally disturbed children are now increasingly subjected to quick and inexpensive pharmacologic fixes as opposed to informed, multimodal therapy associated with optimal outcomes. 11 These disturbing prescription practices suggest a growing crisis in mental health services to children and demand more thorough investigation.

Editorials represent the opinions of the authors and THE JOURNAL and not those of the American Medical Association.

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